

REMARKS

In the Office Action dated July 27, 2004, the Examiner rejected claims 19, 22, 24, and 26-28 under 35 USC 102(e) as anticipated by Nishiguchi (US Patent 5,214,308), rejected claims 20 and 25 under 35 USC 103 as unpatentable over Nishiguchi and Kato (US Patent 6,486,562), rejected claim 21 under 35 USC 103 as unpatentable over Nishiguchi and Morihara (US patent 5,495,439), rejected claims 29-31 under 35 USC 103 as unpatentable over Nishiguchi, rejected claims 35, 36, 37, 39 and 40-42 under 35 USC 103 as unpatentable over Nishiguchi and Holzapfel (US Patent 5,872,633), rejected claim 38 under 35 USC 103 as unpatentable over Nishiguchi, Holzapfel, and Kato (US Patent 6,486,562), and rejected claim 43 as unpatentable over Nishiguchi, Holzapfel, and Chiu (US Patent 6,391,683). In response thereto, the Applicants have amended claim 19. Claims 19-43 remain at issue.

Claim 19 has been amended to define the edges of the underfill adhesive layer as being cut by a dicing operation. This feature is taught in paragraphs [0009] and [0012] and therefore is not new matter. In contrast, the Nishiguchi reference teaches the filling of the gap between a semiconductor device and a substrate with a bonding agent. Specifically, the "bonding agent" of Nishiguchi is applied *after* the semiconductor device is mounted onto the substrate. Specifically, column 3 lines 46-52 state:

Instead of molting the bump 2, insulative bonding agent which contracts when it cures may be filled into a gap between the semiconductor device 1 and the substrate 3 and the bump 2 may be pushed to the electrode terminal 5 by a curing contraction force of the bonding agent to electrically connect the bump 2 to the electrode terminal 5. (emphasis added)

The bonding agent at the edges of the Nishiguchi reference are therefore not cut. The Applicants submit that claim 19 is therefore now allowable. Although patentable in their own right, claims 20 - 34 and 38-42 are also patentable based on their dependency on claim 19.

The Applicants submit that claim 35 is also allowable. Claim 35 is directed to a semiconductor *wafer* with a layer of at least partially cured underfill adhesive formed on the active surface. As previously noted, Nishiguchi teaches the filling of the gap between a semiconductor device and a substrate with a bonding agent. Nishiguchi therefore explicitly teaches that the bonding agent is applied subsequent the semiconductor device being mounted onto the substrate.

Holzapfel is directed to a polishing machine for removing layers from a wafer. There is absolutely no reason whatsoever to combine these references. In fact, the two references seem to contradict one another, and therefore can not be combined as the Examiner suggests. One is directed to forming a layer (bonding agent) onto a single semiconductor device. The other is directed to removing layers from the surface of a wafer.

The Applicants submit that claim 35 is therefore allowable. Although patentable in their own right, claims 36-37 are also allowable based on their dependency on claim 35. Finally, although not specifically addressed herein because it is believed not necessary, the Applicants disagree with the Examiner's reasons for rejecting claims 36-37. The Applicants failure to substantively address these rejections should not be construed in anyway as an admission by the Applicants as to the veracity of these rejections. The Applicants reserve the right to address these rejections at anytime in the future.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,  
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